



# California Regional Water Quality Control Board

## San Francisco Bay Region

Terry Tamminen  
Secretary for  
Environmental  
Protection

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Arnold Schwarzenegger  
Governor

SEP 22 2004

File No: 2179.7168 (LCR)

Certified Mail No. 70032260000212595387

Mr. Doug Hayes, Owner  
The California Abalone Company  
63 Cayuga Place  
Fremont, CA 94539


SUBJECT: TRANSMITTAL OF FINAL ORDER

Dear Mr. Hayes:

Attached is a copy of Order No. R2-2004-0078 adopted by the Water Board on September 15, 2004. This Order becomes effective on December 1, 2004.

You may contact Linda Rao at (510) 622-2445 or by email at [lcr@rb2.swrcb.ca.gov](mailto:lcr@rb2.swrcb.ca.gov) if you have any questions.

Sincerely,

  
Bruce H. Wolfe  
Executive Officer

Attachments: Order No. R2-2004-0078

Copy to: U.S. EPA, Region 9  
NPDES Permits & Compliance Branch  
75 Hawthorne Street  
San Francisco, CA 94105  
Attn: Nancy Yoshikawa (WTR-5)

SWRCB Div of Water Quality  
P.O. Box 944213  
Sacramento, CA 94244-2130  
Attn: Philip Isorena, Regulation Unit

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**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**ORDER NO. R2 2004-0078  
NPDES PERMIT NO. CA0036277**

**WASTE DISCHARGE REQUIREMENTS FOR:**

**DOUG HAYES, dba  
THE CALIFORNIA ABALONE COMPANY  
PILLAR POINT HARBOR  
HALF MOON BAY, SAN MATEO COUNTY**

**Effective Date: December 1, 2004**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**ORDER R2-2004-0078  
NPDES PERMIT NO. CA0036277**

**REISSUING WASTE DISCHARGE REQUIREMENTS FOR:**

**DOUG HAYES, dba  
THE CALIFORNIA ABALONE COMPANY  
PILLAR POINT HARBOR  
HALF MOON BAY, SAN MATEO COUNTY**

**FINDINGS**

The California Regional Water Quality Control Board, San Francisco Bay Region (Board) finds that:

1. *Discharger and Permit Application.* Doug Hayes, doing business as The California Abalone Company (Discharger), has applied for reissuance of waste discharge requirements under the National Pollutant Discharge Elimination System.

**Facility Description**

2. The site is located in Pillar Point Harbor in western San Mateo County, California (**Figure 1**). The San Mateo County Harbor District has designated a lease area for aquaculture operations, about 500 yards by 750 yards, located to the west of the entrance to the outer harbor of Pillar Point Harbor, located in Half Moon Bay, California (**Figure 2**). Latitudinal and longitudinal coordinates are provided in the Fact Sheet.
3. The Discharger operates a small, water-based farm, for the purpose of growing red abalone (*Haliotis rufescens*) in the waters of Pillar Point Harbor (Harbor). Abalone are raised in rearing cages, suspended beneath rafts, and anchored to the bottom by Dor-Mor anchors. A storage facility, located atop the rafts, are used for the storage of cages; equipment and tools; and the sorting of abalone.
4. Specifically, the Discharger's operation is a "pass-through" aquaculture system through which water, driven by currents and tides, passes naturally through the submerged cages. The Discharger neither collects nor discharges water through a manmade conveyance.

**Purpose of Order**

5. This Order requires monitoring of water quality impacts from a single abalone facility culturing up to 500,000 abalone in the Harbor. Sources of possible impacts include waste by-products associated with the growth of red abalone, and the decomposition of its food source (kelp) that could cause an additional biochemical oxygen demand in the water and sediments of the Harbor. This Order also requires Best Management Practices (BMPs) consistent with those required by the Central Coast Regional Water Quality Control Board and the U.S. EPA. These BMPs are intended to minimize impacts of aquaculture activities on the aquatic ecosystem.

### **Permit History**

6. On July 10, 1996, the California Department of Fish and Game (CDFG) and the San Mateo County Harbor District (SMCHD), as lead agencies under the California Environmental Quality Act (CEQA), certified a Mitigated Negative Declaration (MND) for aquaculture operations in the Harbor.
7. In 1996, the Discharger originally collaborated with three other abalone operators in a joint project that proposed to produce 5,150,000 abalone within the same lease area in the Harbor.
8. In the MND, a simple model of abalone dissolved oxygen (D.O.) uptake versus D.O. availability in the Harbor was prepared. The model suggested that the potential uptake of D.O. in the water column by 5,150,000 abalone would not significantly deplete D.O. in the Harbor (SMCHD, Mitigated Negative Declaration, 1996). However, the MND and CEQA study recommended a conservative water quality monitoring program to address potential water quality concerns.
9. In 1998, the Board issued NPDES permits for all four abalone operators with requirements to monitor water quality impacts of up to 5,150,000 million abalone in the Harbor. Three of the facilities never began the business of stocking and producing abalone in the Harbor. Their NPDES permits expired, and were rescinded by the Board in 2004.
10. On July 15, 1999, the Discharger was granted a California Coastal Commission (CCC) Coastal Development Permit No. E-9817 to grow 500,000 abalone, under extensive mitigation and monitoring requirements. Concerns raised in the CCC Permit at that time include the introduction of a non-indigenous pest species (i.e. the sabellid worm), depletion of dissolved oxygen in the Harbor, and potential impacts to the benthic community due to the build-up of waste by-products associated with abalone culture. It should be noted that these concerns were in large part due to the cumulative effects from four (4) other operations including the Discharger's. All these facilities would have cultured over 5 million abalone. At present, only the Discharger's facility will be operating.
11. As required by the CCC Permit, the Discharger completed an extensive Baseline Sediment and Benthic Infaunal Survey (Tetra Tech, Inc., April, 2004) prior to stocking abalone.

### **APPLICABLE PLANS, POLICIES AND REGULATIONS**

12. Pillar Point Harbor is as an enclosed bay, and therefore, water quality standards for the harbor are not covered by the California Ocean Plan. Normally, the Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries applies to discharges within enclosed bays. However, this policy does not apply in this case as there is no discharge of toxic priority pollutants into the Harbor. Instead, water quality regulations governing enclosed bays and estuaries are those stated in the Water Quality Control Plan for the San Francisco Basin (Basin Plan). The Basin Plan sets standards for "all surface waters within the region, except the Pacific Ocean."

13. The Board adopted a revised Basin Plan for the San Francisco Bay Basin on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board (State Board) and Office of Administrative Law on July 20 and November 13, respectively of 1995. A summary of the regulatory provisions is contained in Title 23 of the California Code of Regulations at section 3912. The Basin Plan identifies beneficial uses and water quality objectives for the waters of the State, including surface and ground waters, as well as effluent limitations and discharge prohibitions intended to protect beneficial uses.
14. Based on review of applicable Federal regulations (40 CFR Part 122 through 131), the Board concludes that this facility is by definition an aquaculture facility, which currently meets, or will meet, the stated definition of an aquaculture facility, during the life of this permit. Specific criteria defining a cold water aquaculture facility include: production of over 9,090 harvest weight kilograms (approximately 20,000 pounds) of aquatic animals per year, and feeding greater than 2,272 kilograms (approximately 5,000 pounds) of food during the calendar month of maximum feeding (Appendix C to 40 CFR part 122.24).
15. Final effluent guidelines for the "Concentrated Aquatic Animal Production Point Source Category" (40 CFR 451) were signed by the U.S. EPA Administrator on June 30, 2004. When promulgated, 40 CFR 451 will establish effluent limitations for net pen facilities that produce over 100,000 pounds per year of aquatic animals (40 CFR 451.1). A pre-publication copy was available on U.S. EPA's website during preparation of this Order. U.S. EPA anticipates promulgation of these new regulations by October 2004, at which time they will become effective. Although the Discharger will not be subject to 40 CFR 451 because of the small number of animals to be produced, the requirements of this Order are as stringent (in some cases more stringent) as these guidelines.
16. **The beneficial uses of Pillar Point Harbor are:**
  - a. Ocean, Commercial and Sports Fishing
  - b. Marine Habitat
  - c. Fish Migration
  - d. Navigation
  - e. Preservation of Rare and Endangered Species
  - f. Water Contact Recreation
  - g. Non Contact Water Recreation
  - h. Shellfish Harvesting
  - i. Fish Spawning
  - j. Wildlife Habitat

## **BASIS FOR REQUIREMENTS**

17. *Dissolved Oxygen and Aquaculture:* The amount of Dissolved Oxygen (D.O.) in the water column is critical to the survival of marine organisms. All aquatic animals respire and absorb oxygen from the water. Generally, D.O. levels below 5.0 mg/L are detrimental to aquatic health. The culture of any aquatic species can affect available oxygen levels in two ways. First, if a large number of animals are grown in a small space, the resulting increased biomass will require more oxygen, potentially depleting oxygen stores. Secondly, the build-up of animal waste and excess feed within a poorly circulated space can increase the oxygen demand in the water column. Therefore, a logical remedy for both concerns is to locate an

aquaculture facility in an area that receives high "flushing" by tides, waves, and currents to naturally mix and oxygenate waters. The culture of 500,000 abalone is not expected to adversely impact the D.O. of the water in the Harbor, based on the following considerations: 1) previous assessments of the oxygen demand in the Harbor (MND, SMCHD, 1996); 2) the proximity of the Discharger's site to the mouth of the Harbor; and 3) the professional judgment of staff biologists at the CDFG and CCC. Additionally, Board staff conducted a site visit in October 2003 and confirmed the tidal activity at the site. Regular monitoring is required by this Order to ensure adequate D.O. levels.

18. *Natural Variation of Dissolved Oxygen:* Certain natural events can alter D.O. levels in coastal waters. These include high rainfall and run-off from land that can alter salinity and water temperature, and increase nutrient loads that can increase oxygen demand. Additionally, high temperatures in shallow bays throughout dry months can depress oxygen levels. Seasonal or migratory runs of bay-spawning fishes (i.e. herring, sardine, anchovy) that enter bays in large numbers to feed or spawn, can rapidly deplete available oxygen. Algae Blooms, caused by an abundance of rapidly growing resident algae, can also use up available dissolved oxygen. Harmful Algae Blooms (HABs) caused by naturally toxic algae can also cause fish kills of resident fish and shellfish, which further deplete available oxygen in a water body. This Order's limitations do not hold the Discharger responsible for factors beyond its control that may lead to the depletion of dissolved oxygen in the Harbor.
19. *Kelp Resources:* The Discharger feeds indigenous giant kelp (*Macrocystis pyrifera*) to its abalone. The CDFG is the lead agency that manages kelp resources within State waters and issues kelp harvesting licenses in certain areas of the state. According to previous CDFG assessments, local kelp resources offshore of San Mateo County remain minimal in their extent. Kelp beds outside the Harbor (San Mateo County) are not open for kelp harvesting. Because the Discharger harvests and transports kelp from Monterey and Santa Cruz counties under a harvesting license issued by the CDFG, the local kelp resources outside the Harbor are not likely to be affected by this abalone operation. The Discharger feeds approximately one ton of kelp to 50,000 abalone.
20. *Control of the Sabellid Polychaete Worm:* The CDFG is the lead state agency responsible for the introduction of non-indigenous species, and the regulation of the sabellid worm. The sabellid worm is a non-native pest species that causes deformation of abalone shells resulting in retarded growth, and potentially significant mortality in wild abalone stocks. The potential for the accidental introduction of the sabellid worm into the environment from aquaculture facilities' use of infected abalone seed stock remains a significant ecological concern.
21. *Discharge Prohibition for Exotic Species:* The Board is responsible for protecting beneficial uses of State waters. Because exotic species may impair marine habitat, the Board is authorized to regulate the discharge of exotic species with an NPDES permit. In order to prevent future impairment of marine habitat and assist CDFG in preventing the spread of exotic species throughout State waters, this permit prohibits the placement and discharge of abalone infected by the sabellid worm, into State waters. It is the Discharger's responsibility to follow the latest CDFG policies and procedures to prevent the accidental introduction of this pest into State waters. Specifically, the Discharger must: a) ensure that only sabellid-free abalone stock (certified by the CDFG) is used in its culture facility; b) prevent the spread of sabellid worms into the natural environment; and c) respond immediately to an infestation. Key provisions to ensure non-introductions are required in the Discharger's CCC Permit (E-

98-17) Special Condition # 4, and are also quoted from the CCC permit in the Fact Sheet of this Permit.

22. *Benthic Feeding Fish:* Monitoring of benthic fish populations was originally recommended as part of the 1996 MND for the project. In past comments received from CDFG, CCC, and NOAA, it was determined that by monitoring changes in benthic infauna and bottom sediment, the health of the benthic infauna would be a suitable index for the health of benthic fish communities in the Harbor. Therefore, consistent with the previous permit, benthic fish population monitoring is not required as part of this permit. As a follow-up to baseline monitoring conducted by the Discharger in 2004, this Order requires periodic sediment surveys to provide details of possible changes in benthic community structure immediate to the Discharger's abalone cages.
23. *Waterfowl Species:* Several waterfowl species (loons, cormorants, scaup, scooters, mergansers, grebes, etc.) use the Harbor to feed and rest (Sequoia Audubon Society, 1995). Nearly all of these species require space to taxi and take-off into the air. The Discharger's facility may cause a potential reduction of available waterfowl habitat of up to 60ft. x 240ft of space. CDFG acknowledges that because of the reduction in the size of this project in comparison to that collectively proposed by four facilities in 1998 (500,000 abalone versus 5,200,000), it does not appear that a significant reduction in waterfowl habitat area will occur as a result of this single aquaculture operation. A site inspection conducted on July 29, 2003, by Board staff confirms that Discharger's floating rafts provide resting and feeding area for resident waterfowl species. In the event that a concern for waterfowl species arises, the Board expects the Discharger to work with the CDFG and Board staff to investigate and resolve issues.
24. *Source Control and Best Management Practices (BMPs):* In aquaculture operations, the most direct and least expensive approach to controlling pollution is through efficient operations and best management practices. BMPs in aquaculture permits issued by the Central Coast Regional Water Control Board and BMPs recommended by U.S. EPA, include: 1) prevent the discharge of non-indigenous species; 2) minimize and/or prohibit use of pharmaceuticals; 3) minimize waste by-products, including abalone shells; 4) minimize waste associated with over-feeding; and 5) minimize the use of cleaning agents. Consistent with these, this permit contains Discharge Prohibitions for the first three named above. The other BMPs do not apply to this Discharger. For the BMP on *over-feeding*, biologists from the CDFG state that over-feeding is not a significant environmental concern with abalone culture as it is for finfish culture. This is because abalone are herbivores fed a diet of kelp which is carefully administered within cages, and which is consumed more efficiently than finfish food, creating less opportunity to over feed. By contrast, finfish are generally fed artificial fish food in a pellet form that is scattered or "broadcast fed" in a manner more conducive to accidental overfeeding, and water column wasting. As for the BMP on cleaning agents, the Discharger reports that no such agents will be used in its operation.
25. The water quality monitoring and baseline monitoring requirements in this Order have been modified from the previous permit to account for a single abalone farm producing 500,000 abalone (versus 5.2 million projected in 1998), and the concomitant reduction of water quality and environmental impacts originally estimated between 1996 and 1998. The Discharger will be required to conduct regular monitoring during its operation, periodic follow-up of baseline surveys, and then intensive water quality monitoring if certain indicators suggest a potential

water quality concern. The water quality monitoring requirements are described this Order, in Section C. *Provisions* and in the attached Self-Monitoring Program (SMP).

26. The Basin Plan establishes narrative objectives for acute and chronic toxicity. In part, the Basin Plan states that "All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce detrimental responses in aquatic organisms. Detrimental responses include but are not limited to, "decreased growth rate and decreased reproductive success of resident or indicator species..."
27. Receiving water limitations in this Order are based on the water quality objectives and criteria of the Basin Plan, and applicable Federal Regulations (40 CFR Part 122 through 131).

### **CEQA AND PUBLIC NOTICE OF ACTION**

28. The issuance of waste discharge requirements for this discharge is exempt from the provision of Chapter 3 (commencing with Section 21100 of Division 13) of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.
29. The Board has notified the Discharger and interested agencies and persons of its intent to issue waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
30. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED THAT the Discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted there under, and the provisions of the Clean Water Act and regulations and guidelines adopted there under, shall comply with the following:

#### **A. Prohibitions**

1. The maximum number of abalone grown by the Discharger at any time during the life of this Order shall not exceed 500,000.
2. The placement and discharge of abalone infected with the sabellid worm (an exotic species) to the waters of the State, is prohibited.
3. The use of pesticides, pharmaceuticals, or biocides is prohibited. A special case-by-case exemption can be made for FDA-registered drugs if the Discharger requests and receives permission in writing from the Executive Officer of the Board to administer the drug for aquacultural use. Use of the drug is prohibited until written permission from the Executive Officer is obtained.
4. Disposal of waste by-products (including abalone shells) to waters of the State, is prohibited.

## **B. Receiving Water Limitations**

1. The Discharger shall not cause the following limits to be exceeded in waters of the State at any place:
  - a. Dissolved oxygen: 5.0 mg/l minimum.
  - b. The pH shall not be depressed below 6.5 or raised above 8.5.
  - c. Controllable water quality factors shall not increase the total dissolved solids or salinity of waters of the State so as to adversely affect beneficial uses, particularly fish migration and estuarine habitat.
  - d. Waters shall not contain substances in concentrations that result in the deposition of material in concentrations that cause nuisance or adversely affect beneficial uses.
2. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Clean Water Act, and regulations adopted there under. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto the Board will revise and modify this Order in accordance with such standards.

## **C. Provisions**

### **1. Receiving Water Monitoring:**

- a. **Initial Intensive Weekly Monitoring (6 weeks):** Within 30 days of the effective date of this Order, the Discharger shall monitor dissolved oxygen (D.O.), water temperature, and pH to evaluate the gradient of each, throughout the Harbor. Sites, methods, and details are described in the attached Self-Monitoring Program (SMP).
  - b. **Weekly Operational Monitoring:** To monitor water quality impacts, weekly thereafter, the Discharger shall sample one day a week for D.O., water temperature, and pH as stipulated in the SMP. The Discharger shall note observations about its operation (mortality of abalone), the fish around its cages, waterfowl in its vicinity, and biological changes occurring in the water (i.e. algae blooms, fish kills).
  - c. **Modifications to Weekly Operational Monitoring:** If the Discharger can demonstrate consistent compliance for a period of two (2) consecutive years, the Discharger may request the Executive Officer to allow a reduction in the frequency of monitoring from that specified in the SMP.
2. **Annual Sediment Monitoring Surveys:** As a follow up to the April 2004 Baseline Sediment and Benthic Infaunal survey conducted by the Discharger to measure the health of the infaunal community, sediment surveys shall be conducted beginning one (1) year after the date that Discharger stocks 100,000 abalone, and annually thereafter. Because sediment is the most stable indicator of impact, TOC and grain size are considered indicators of changes in infaunal community structure.

**3. Intensive Monitoring in response to a water quality or sediment concern:**

- a) D.O. - In the event that D.O. drops below 5.0 mg/L at the abalone rafts (site R3), the Discharger shall increase sampling frequency to twice over 12 hours, once at high tide, once at low tide.
- b) TOC - If the Discharger's annual infaunal/sediment analysis shows an increase in TOC above 0.5 percent (CCC permit requirement), the Discharger shall notify the Executive Officer within 24 hours to discuss mitigation efforts.

**4. Reporting:** On a quarterly basis as specified in the SMP, the Discharger shall submit to the Executive Officer the following; a) weekly water quality monitoring data and observations; b) mortality of animals and cause; c) plans to increase or decrease production of animals over the next quarter or year.

Annually, Discharger shall submit to the Executive Officer, an Annual Sediment Monitoring Report, as described in Provision 2. Details are specified in Section IV.C. of the SMP.

**5. The Discharger shall comply with all items of the attached SMP.**

**6. Best Management Practices:** The Discharger shall minimize the use of cleaning agents in its operation and maintenance.

**7. The Discharger shall allow the Board or its authorized representatives, upon presentation of credentials:**

- a. Entry on the premises on which animals are located or in which records are kept.
- b. Access to view or copy any records required to be kept under the terms and conditions of this Order.
- c. Inspection of any docks, rafts and grow-out equipment, monitoring equipment or data or methods required by this Order.
- d. Sampling of discharge or surface water covered by this Order.

**8. Change in Control or Ownership:**

- a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Board.
- b. To assume responsibility of and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order (see Standard Provisions & Reporting Requirements, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

**9. Permit Reopener:**

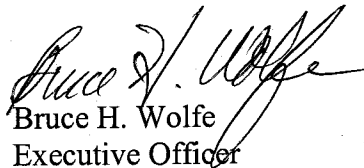
The Board may modify or reopen this Order and Permit prior to its expiration date in any of the following circumstances:

- a. If present or future investigations demonstrate that the discharge(s) governed by this Order and Permit will or have a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;
- b. New or revised regulations and policies come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific).

**10. Effective Date of NPDES Permit:** This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective on December 1, 2004, provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

**11. Order Expiration and Reapplication:** This Order expires on November 30, 2009. In accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, the Discharger must file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissue of this permit and waste discharge requirements. The application shall be accompanied by a summary of all available water quality data from no less than the most recent three years. Additionally, the Discharger must include with the application the final results of any studies that may have bearing on the limits and requirements of the next permit. Such studies shall include benthic or sediment monitoring studies.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the forgoing is a full, true and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 15, 2004.

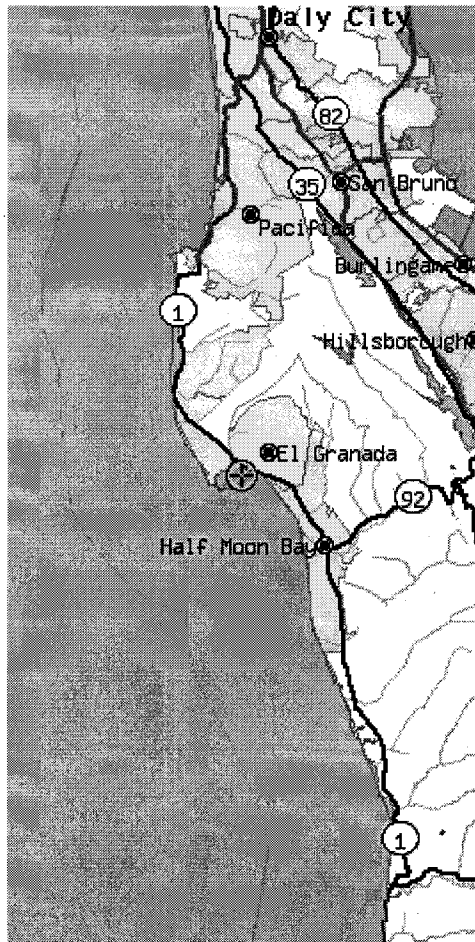
  
Bruce H. Wolfe  
Executive Officer

**Attachments:**

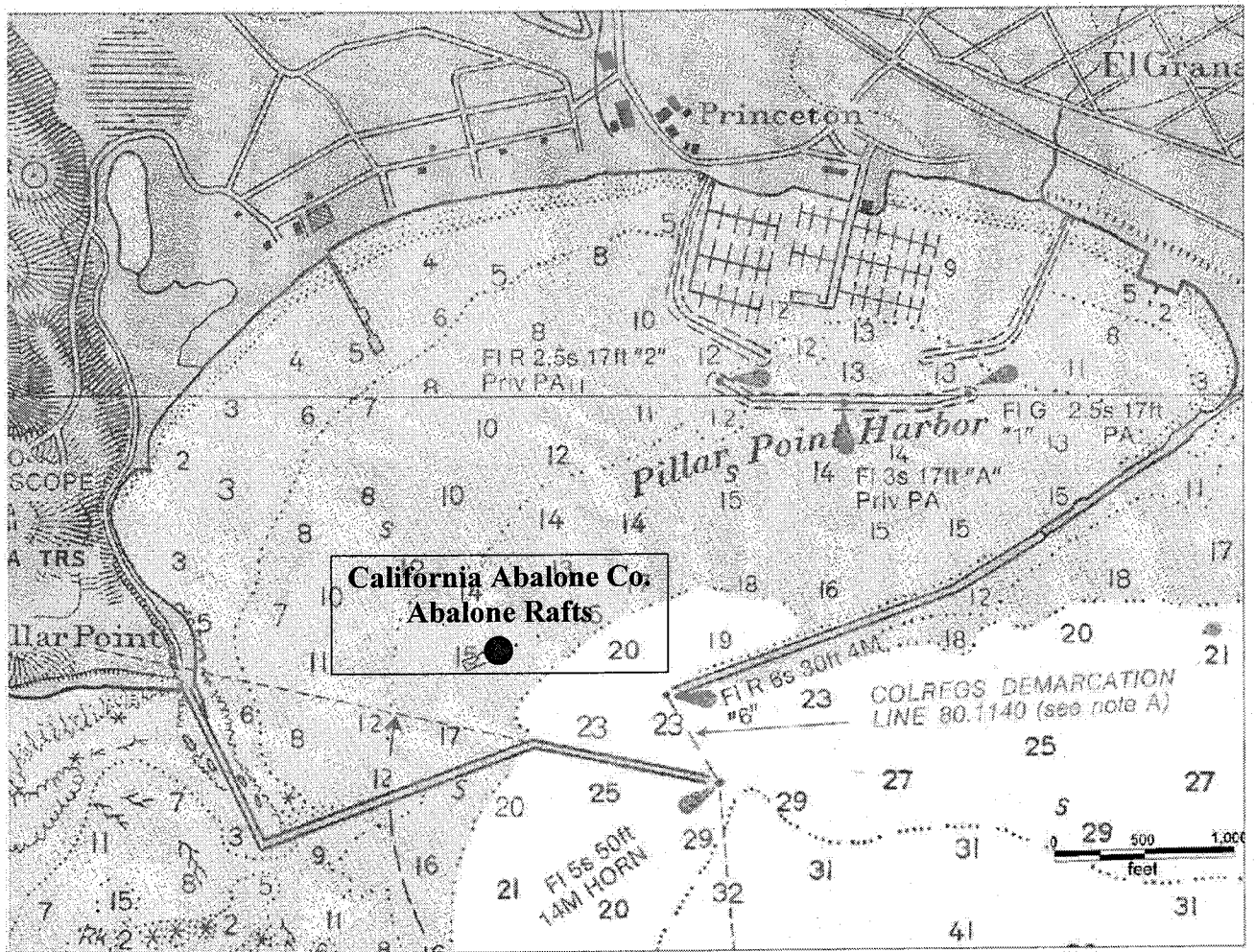
Figure I. Location Map: Pillar Point Harbor

Figure 2. Location Map: California Abalone Company  
Self-Monitoring Program

**Figure 1.** Location Map: Pillar Point Harbor (⊖)



**Figure 2.** Location Map: California Abalone Company and abalone rafts within Pillar Point Harbor.



# **SELF-MONITORING PROGRAM**

**FOR**

**DOUG HAYES, dba  
THE CALIFORNIA ABALONE COMPANY**

**SAN MATEO COUNTY**

**NPDES NO. CA0036277**

**ORDER NO. R2-2004-0078**

**Effective Date: December 1, 2004**

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO REGION  
SELF-MONITORING PROGRAM

FOR

Doug Hayes, dba The California Abalone Company  
Aquaculture Operations in Pillar Point Harbor

**I. GENERAL**

A. Basis

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383 and 13387(b) of the California Water Code and this Board's Resolution No. 73-16.

B. Purpose

The principal purposes of a monitoring program by a waste discharger, also referred to as Self-Monitoring Program, are: (1) to document compliance with waste discharge requirements and prohibitions established by this Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, and other standards, and (4) to prepare water quality inventories.

C. Sampling and Methods

Sample collection, storage, and analyses shall be performed according to 40 CFR 136 or other methods approved and specified by the Executive Officer of this Board. Any necessary laboratory analyses, shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DOHS). All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements. All Quality Assurance/Quality Control measures and results shall be kept on site for at least 5 years, and made available upon request of the Executive Officer.

**II. DEFINITION OF TERMS**

Grab sample is defined as an individual sample collected in a short period of time not exceeding 15 minutes. It is used primarily in determining compliance with daily maximum limits and instantaneous maximum limits. Grab samples represent only the condition that exists at the time the sample is collected.

Duly authorized representative is one whose:

- a. Authorization is made in writing by a principal executive officer or ranking elected official of the discharger;

- b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general partner, sole proprietor, plant manager, superintendent, a position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company.

### III. SPECIFICATIONS FOR SAMPLING AND ANALYSES

The Discharger shall perform sampling and analyses in accordance with the following conditions:

#### A. Receiving Waters:

1. Receiving water sampling shall be conducted at the following monitoring stations:

<u>Station</u>	<u>Description</u>
R1	SMCHD Launch Ramp; end of ramp.
R2	Half-way point between abalone facility and the SMCHD Launch Ramp and approximately 50 feet south of bait receiving station.
R3	Abalone Rafts; centered directly below abalone facility.
R4	Pillar Point Harbor entrance (Reference site); within 100 feet of end of break wall, as shown in Figure A.

Attached map (**Figure A**) shows locations for monitoring stations.

2. **Initial Intensive Weekly Monitoring (6 weeks):** Within 30 days of the effective date of this Order, measurements of dissolved oxygen (D.O.), water temperature, and pH shall be made weekly for six (6) weeks, at the four (4) stations named above. Grab samples shall be taken twice daily at high and low tide at all four (4) stations within a 3-hour time frame. Measurements shall be made once on incoming tide and once on outgoing tide (minimum 4 hour separation). At each sampling station, one measurement must be made in each of the following positions within the water column: a) within two feet of the surface; b) midway between the surface and bottom; and c) within two feet of the bottom.
3. **Weekly Operational Monitoring.** Subsequent to the Initial Monitoring above, the Discharger shall continue with the Weekly Operational Monitoring specified below:
  - a. **D.O., water temperature, and pH:** The Discharger shall collect grab samples, one day a week, once daily, at each of the four (4) stations named above for D.O., water temperature, and pH. On each sampling day, the Discharger shall sample all four sites within two (2) hours. At each sampling site, one measurement must be made

above the abalone cages, and at a second sampling point mid-depth within the abalone cage (approximately 3-feet below the surface).

- b. **Number of Abalone Stocked.** The Discharger shall record the number of abalone stocked.
        - c. **Modifications to Weekly Monitoring:** If the Discharger can demonstrate consistent compliance for a period of two (2) consecutive years, the Discharger may request the Executive Officer to allow a reduction in monitoring frequency. This modification shall consist of continued weekly monitoring at the Discharger's abalone cages (site R3) for D.O., water temperature, and pH, and a reduction from weekly to monthly monitoring at the other 3 monitoring sites. The Discharger shall continue to collect observations as indicated in Section 6. The Discharger must obtain written approval for reduced monitoring prior to initiation of reduced monitoring.
4. **Annual Sediment Monitoring Surveys:** Benthic surveys with total organic carbon (TOC) and grain size analysis, shall be conducted annually beginning one (1) year after the date that 100,000 abalone are stocked, and annually thereafter. A minimum of 2 (two) sites must be monitored; R3 directly beneath the Discharger's cages, and the same distant control site originally monitored by Tetra Tech in Discharger's 2004 Baseline Sediment and Benthic Infaunal study (140 meters distant). This annual report shall be submitted annually in February, in accordance with IV. c., Self-Monitoring Reports of this SMP.
5. **Intensive Monitoring in response to a water quality or sediment concern (triggers):**
  - a. **D.O. Trigger (5.0 mg/L):** If weekly monitoring shows D.O. to be depressed below 5.0mg/L at only station R3, the Discharger shall begin twice daily monitoring at R3. The Discharger shall sample R3, at high and low tide until D.O. levels increase to 5.0 mg/L or higher. The Discharger shall notify Board staff and the CDFG as soon as practicable.
  - b. **TOC Trigger:** In response to a 0.5% increase in TOC, between the R3 and reference sediment stations, the Discharger shall collect composite samples at the R3 station. Sampling shall include at least 3 (three) field samples separated by 1-5 meters. If the Discharger's annual sediment analysis shows an increase in TOC above a 0.5 percent trigger, the Discharger will report in the Self Monitoring Report specific actions to mitigate for this concern.
6. **Weekly Observations:**
  - a. **Abalone Mortality:** Abalone are sensitive to changes in the receiving water. If abalone mortality is 5% above the total abalone stocked, the Discharger shall report the total percentage of abalone mortality. This percentage shall not include sources of natural mortality due to the transfer of animals or due to predation, which are obvious to the Discharger. If mortality increases above 20% of animals, the Discharger must contact Board staff as soon as practicable to discuss potential causes and how the Discharger will respond.

- b. **Qualitative Observations:** Water quality (i.e. color of water) or wildlife (i.e., algae blooms, increase in abundance of fish near pens, a fish kill, or the presence of waterfowl around rafts). Where possible, Discharger should note the common name or species of fish and waterfowl.

#### B. Records to be Maintained

1. Written reports, strip charts, calibration and maintenance records, and other records shall be maintained by the Discharger. The records should be accessible (at the San Mateo County Harbor District), and retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board or Regional Administrator of the U.S. EPA, Region IX. Such records shall show the following for each sample:
  - a. Identity of sampling and observation stations by number.
  - b. Date and time of sampling and/or observations.
  - c. Date and time that analyses are started and completed, and name of personnel performing the analyses.
  - d. Complete procedure used, including method of preserving sample and identity and volumes of reagents used. A reference to specific section of Standard Methods is satisfactory.
  - e. Calculations of results.
  - f. Results of analyses and/or observations.
  - g. A copy of current CA Department of Fish and Game procedures on responding to a Sabellid Infestation, must be kept on-site at all times.
  - h. The number and age of animals stocked and the date stocked, the estimated feed amount per month, and the number of animals produced at harvest time with the estimated weight and length of an average animal (with shell) at harvest time.

#### **IV. REPORTS TO BE FILED WITH THE BOARD**

##### A. Report of Permit Violations

In the event that the permit is violated, the Discharger shall notify the Board by telephone within 24 hours and shall notify the Board in writing within five (5) working days. A written report shall include time and date of incident, and estimated duration of violation. The report shall

include a detailed discussion of the reasons for the non-compliance and what steps were or will be taken to correct the failure and prevent it from occurring again.

### B. Spill Reports

A report shall be made of any spill of hazardous material. Spills shall be reported to the Board, at (510) 622-2300 on weekdays during office hours from 8 AM to 5 PM, and to the Office of Emergency Services at (800) 852-7550 during non-office hours, and to the U.S. Coast Guard at (415) 437-3091 (if the spill is into navigable waters) by telephone immediately after occurrence.

Notification and a report shall be made in response to any detection of sabellid worm infestation. Sabellid worm infestations shall be reported immediately to CDFG at 707-875-4261 or at 707-875-2067, and to the Board at (510) 622-2300. A written report shall be filed with the Board within five (5) working days and shall contain the following information as applicable:

1. nature of waste, pollutant, or pest infestation;
2. quantity involved;
3. duration of incident;
4. cause of spill;
5. SPCC Spill Prevention and Containment Plan in effect, if any;
6. estimated size of affected area;
7. nature of effects (i.e., fish kill, discoloration of receiving water, etc.);
8. corrective measures that have been taken or planned, and a schedule of these activities; and
9. persons notified.

### C. Self-Monitoring Reports

Self-monitoring reports shall be submitted quarterly by May 1, August 1, November 1, and February 1. Each report shall provide data from the previous calendar quarter. The February report shall also contain an annual report with tabular summaries of the previous 12 months of monitoring data. Reports shall be submitted to each of the following agencies:

California Department of Fish and Game  
Marine Aquaculture Coordinator  
P.O. Box 1560  
Bodega Bay, CA 94923

National Oceanic & Atmospheric Administration  
Monterey Bay National Marine Sanctuary  
Resource Protection Coordinator  
299 Foam Street, Suite D  
Monterey, CA

Regional Water Quality Control Board  
Attention: NPDES Division  
1515 Clay Street, Suite 1400  
Oakland, CA 94612

San Mateo County Harbor District  
Attention: Harbor Master, Peter Grenell  
One Johnson Pier  
El Granada, CA 94018

California Coastal Commission  
Attention: Marine Biologist, John Dixon  
45 Fremont, Suite 2000  
San Francisco, Ca 94105

The reports shall be comprised of the following:

1. Letter of Transmittal which includes identification of changes to the project design and any water quality violations or spills that have occurred since the last reporting period.
2. A monitoring report which details: the magnitude, frequency, and dates of all violations, the cause(s) of the violations, corrective actions taken or planned, and the schedule for completion of corrective actions.
3. Monitoring reports and the letter transmitting reports shall be signed by a principal executive officer or ranking elected official of the discharger, or by a duly authorized representative of that person.
4. The letter shall contain the following certification:

"I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

5. Results of Analyses and Observations

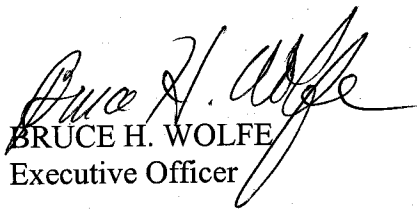
- a. Grab samples for dissolved oxygen and water temperature: summary tabulation of All values for data collected within the reporting period shall be reported for each constituent, by station. Date(s) and time(s) of low and high values at each station shall also be reported. All data collected within the reporting period shall also be provided on computer diskette in spreadsheet tables organized by station and time sequentially.
- b. Bottom sediment sampling: all data collected within the reporting period shall be submitted.

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Regional Board's

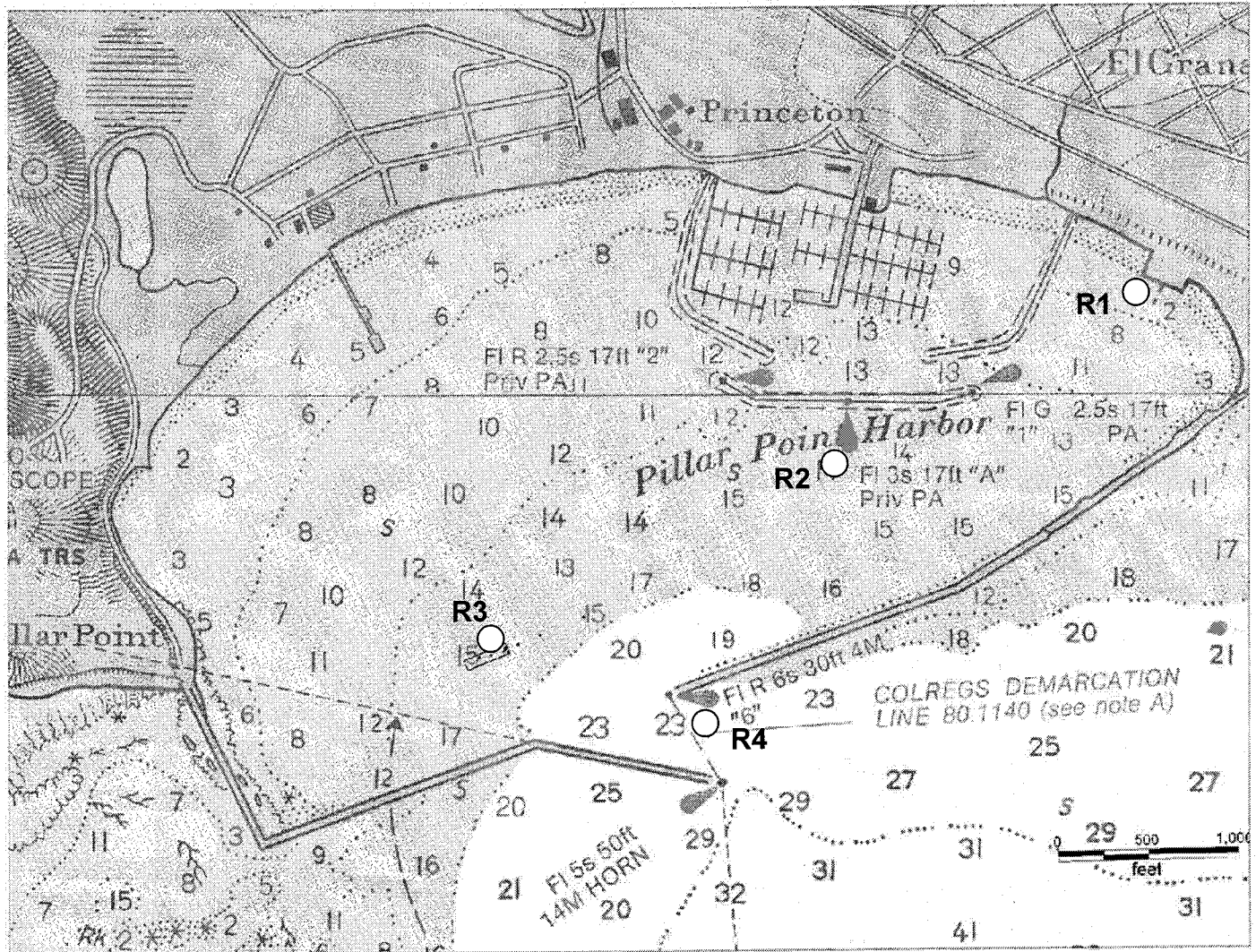
Resolution No. 73-16, in order to obtain data and document compliance with waste discharge requirements established in Board Order No. R2-2004-0078

2. Has been adopted by the Board on September 15, 2004.
3. May be revised by the Executive Officer pursuant to federal regulations (40CFR122.63); other revisions may be ordered by the Board.

  
BRUCE H. WOLFE  
Executive Officer

Attachments:

**Figure A. Sampling Site Location Map**



**Figure A. Sampling Site Location Map for Monitoring stations R1-R4**

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION  
1515 CLAY STREET, SUITE 1400  
OAKLAND, CA 94612  
(510) 622 - 2300 Fax: (510) 622 - 2460

**FACT SHEET**  
for

NPDES PERMIT and WASTE DISCHARGE REQUIREMENTS for  
**Doug Hayes, dba THE CALIFORNIA ABALONE COMPANY**  
PILLAR POINT HARBOR  
HALF MOON BAY, SAN MATEO COUNTY  
NPDES Permit No. CA0036277  
ORDER NO. R2-2004-0078

**PUBLIC NOTICE:**

**Written Comments**

- Interested persons are invited to submit written comments concerning this draft permit.
- Comments must be submitted to the Regional Board no later than 12:00 p.m. on **September 7, 2004.**
- Send comments to the Attention of Linda Rao.

**Public Hearing**

- The draft permit will be considered for adoption by the Board at a public hearing during the Board's regular monthly meeting at: Elihu Harris State Office Building, 1515 Clay Street, Oakland, CA; 1<sup>st</sup> floor Auditorium.
- This meeting will be held on: **September 15, 2004, starting at 9:00 am.**

**Additional Information**

- For additional information about this matter, interested persons should contact Regional Board staff member: Ms. Linda Rao, Phone: (510) 622-2445; email: LCR@rb2.swrcb.ca.gov

This Fact Sheet contains information regarding the amendment of waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permit for Doug Hayes, dba The California Abalone Company (the Discharger). The Fact Sheet describes the factual, legal, and methodological basis for the sections addressed in the proposed permit and provides supporting documentation to explain the rationale and assumptions used in deriving the effluent limitations.

**I. INTRODUCTION**

The Discharger applied to the Board for the reissuance of waste discharge requirements and a permit to operate its business in waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES). The application and Report of Waste Discharge are dated March 17, 2003.

The Discharger owns and operates the California Abalone Company located in the Pillar Point Harbor (Harbor), located at in western San Mateo County, California. The precise coordinates for The California Abalone Company are: southeast corner-Lat. 37.547N/Long. 122.568W; northeast

corner-Lat. 37.552N/Long. 122.576W; northwest corner- Lat. 37.529N/Long. 122.610W; southwest corner-Lat. 37.525N/Long. 122.504W. The San Mateo County Harbor District has a legislative grant from the State of California that allows the Harbor to lease areas consistent with requirements of commerce and navigation. The Coastal Act provides for the protection of commercial fishing and recreational boating and provides that existing boating harbor space shall not be reduced unless the demand for such facilities no longer exists. Therefore, this Permit does not address the issue of harbor space because the Harbor District and California Coastal Commission are the agencies with regulatory jurisdiction in this matter.

The Discharger's abalone operation is a "pass-through" aquaculture system through which water, driven by currents and tides, passes naturally through submerged cages. The Discharger neither collects nor discharges water through a manmade conveyance.

To account for potential dissolved oxygen concerns raised by the Harbor District and the Coastal Commission in 1998, the previous 1998 NPDES Permit required the Discharger to phase-in the growth of its abalone operation, and included water quality monitoring requirements for physical and chemical attributes, and extensive benthic invertebrate sampling and several baseline studies. In this Order, the discharger has projected that it may grow a maximum of 500,000 abalone in the Harbor. Thus, the 500,000 abalone production level is significantly lower than the 5.20 million abalone estimated to be grown total among four operators in Pillar Point in 1998.

This permit continues two major requirements from the 1998 permit. These are: 1) no release of abalone infected by the sabellid worm, and 2) Sampling of D.O., and sediment/infauna. In 1998, the Discharger's company name was Pacific Offshore Farms.

**Sabellid Polychaete Worm:** The Discharger's Coastal Development Permit (E98-17) Special Condition #4 reads:

**"Approved Transfer and Inspection Procedures.** Pacific Offshore Farms Shall only obtain stock from (1) a facility that has been certified by the CDFG as "sabellid-free", or (2) a new facility that has applied for sabellid-free certification and that uses wild broodstock, each of which have been inspected by the CDFG and found to be free of sabellids prior to introduction to the facility. Prior to issuance of this permit, Pacific Offshore Farms shall submit to the executive evidence that its source facilities "meet one of the above-listed criteria". Also included is the requirement that "Pacific Offshore Farms shall fully adhere to the transfer and inspection procedures contained in Appendix B, with the following additional requirement: If a sabellid infestation is Detected, Pacific Offshore Farms shall immediately remove the cage or container in which the infested animal was found."

**Monitoring of Parameters as Indicators of effects on Benthic Fish Communities:** Monitoring of benthic fish populations was originally recommended as part of the 1996 Mitigated Negative Declaration for the project (San Mateo County Harbor District, 1996). At that time, based on comments received from CDFG, Coastal Commission, and NOAA, it was determined that monitoring of dissolved oxygen concentrations, benthic infauna, and bottom sediment would provide a suitable index of how the proposed facility could effect benthic fish communities residing in the harbor. Also, because benthic fish species assemblage and populations vary greatly under existing conditions, it would likely be very difficult to detect statistically significant changes in populations that could be attributed directly to the aquaculture operation. Therefore fish population monitoring was not

required as part of this permit. Tom Moore, of CDFG, concurs with this continued approach to monitoring.

## II. GENERAL RATIONALE AND REGULATORY BASES

Water quality objectives (WQOs), water quality criteria (WQC), receiving water limitations, and calculations contained in this Order are based on:

- The Regional Board's June 21, 1995 *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan);
- applicable Federal Regulations [40 CFR Parts 122 and 131, and Appendix C to 40 CFR part 122.24;
- Porter-Cologne Water Quality Control Act, California Water Code.
- Regional Board staff's Best Professional Judgment (BPJ), as defined by:
- the Basin Plan
- USEPA Region 9 February 1994 *Guidance For NPDES Permit Issuance*;
- Pre-publication Final effluent guidelines for the "Concentrated Aquatic Animal Production Point Source Category" (40 CFR 451) signed by the EPA administrator on June 30, 2004, and expected to be promulgated by October 2004.

## III. SPECIFIC RATIONALE

Several specific factors affecting the development of limitations and requirements in the proposed Order are discussed as follows:

### A. Basis for Prohibitions

1. Prohibition A.1 (Maximum of 500,000 abalone) is unchanged from the previous permit and is based upon the Discharger's maximum proposed in its March 2003 NPDES application.
2. Prohibitions A.2 (Discharge of infected abalone) is based on the Board's Discharge Prohibition for Exotic Species (Finding No. 16) The prohibition is also consistent with the Discharger's CCC Permit (E-98-17). Additionally, discharge of any biota listed in California Code of Regulations Title 14, Section 245 (Aquaculture Disease Control Regulations), or referenced in Part a.8 of the same section, which is not indigenous to the California Coast is prohibited.
3. Prohibition A.3 (Pesticides, pharmaceuticals, biocides) is based in part on the Central Coast Regional Board's aquaculture permits (R3-2002-0057, R3-2002-0076) and BPJ based on BMPs recommended by the U.S. EPA.
4. Prohibition A.4 (Disposal of waste-by products) is based on BMPs recommended by the Central Coast Regional Board's abalone aquaculture permits (listed in A.3 above) and BMPs recommended by the U.S. EPA.

## **B. Basis for Receiving Water Limitations**

1. Receiving Water Limitations B.1: (D.O.) is unchanged from the previous permit and is based on the Basin Plan (Chapter 3, pg. 3-3).
2. Receiving Water Limitation B.2 (pH): This limitation is unchanged from the previous permit. The limitation is based on the Basin Plan (Chapter 3, page 3-3, and Table 4-2).
3. Receiving Water Limitation B.3 (Total dissolved solids) This limitation is unchanged from the previous permit. The limitation is based on the Basin Plan (Chapter 3, page 3-3).
4. Receiving Water Limitation B.4 (deposition of substances). This limitation is unchanged from the previous permit. The limitation is based on the Basin Plan (Chapter 3, page 3-3).

## **C. Basis for Provisions**

- i) Provisions C.1.a-c (Receiving Water Monitoring) is based on Best Professional Judgment (BPJ) as determined by (1) the previous permit, (2) Central Coast Regional Board's aquaculture permits (R3-2002-0057, R3-2002-0076), and (3) personal communication with staff from the CCC (John Dixon) and of the CDFG (Tom Moore).
- ii) Provision C.2 (Annual Sediment Monitoring Surveys). These are required to follow-up from the initial Baseline Sediment and Benthic Infaunal Survey previously required in the Previous permit (98-055) and conducted by the Discharger. Staff of the CDFG (Tom Moore) and CCC (John Dixon) report that this continued monitoring is critical to evaluate possible long-term changes in sediment that may impact benthic infaunal community structure.
- iii) Provision C.3 (Intensive monitoring in response to a water quality concern) is based on BPJ as determined by personal communication with staff from the CCC (John Dixon) and of the CDFG (Tom Moore).
- iv) Provision C.4 (Reporting requirements) This provision is based on California Water Code, Division 7 Water Quality, Chapter 5.5, Section 13383 Monitoring Requirements.
- v) Provision C.5 (Self-Monitoring Plan) The Discharger is required to conduct receiving water monitoring in the vicinity of the facility in order to evaluate compliance with permit conditions. Monitoring requirements are given in the Self Monitoring Program (SMP) of the Permit. This provision requires compliance with the SMP, and is based on 40 CFR 122.44(i), 122.62, 122.63 and 124.5. The SMP is a standard requirement in almost all NPDES permits (including this Order) issued by the Board. In addition to containing definitions of terms, it specifies general sampling/analytical protocols and the requirements of reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Board's policies. It defines the sampling stations and frequency, pollutants to be monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which receiving water limitations are specified
- vi) Provision C.6 (Best Management Practices) is based on BPJ as referencing the Central Coast Regional Board's aquaculture permit (R3-2002-0057) and on BMPs recommended by the U.S. EPA.

vii) Provision C. 7 (Authorized representatives) This provision is based on California Water Code, Division 7 Water Quality, Chapter 4, Article 4, Section 13267 Investigations; Inspections; and Chapter 5.5, Section 13383 Monitoring Requirements.

viii) Provision C.8 (Change in Control or Ownership): This provision is based on 40 CFR 122.61.

ix) Provision C.9 (Permit Reopener): This provision is based on 40 CFR 123.

x) Provision C.10 (Effective Date of NPDES Permit/U.S. EPA concurrence): This provision is based on 40 CFR 123. and California's Memorandum of Agreement with U.S. E.P.A

xi) Provision C.11 (Order Permit Expiration and Reapplication): This provision is based on 40 CFR 122.46(a).

#### **IV. WASTE DISCHARGE REQUIREMENT APPEALS**

Any person may petition the State Water Resources Control Board to review the decision of the Board regarding the Waste Discharge Requirements. A petition must be made within 30 days of the Board public hearing.